

L6 ANSWER 1 OF 1 SCISEARCH COPYRIGHT 1998 ISI (R)  
 ACCESSION NUMBER: 90:76161 SCISEARCH  
 THE GENUINE ARTICLE: CL594  
 TITLE: FORCE MICROSCOPE WITH CAPACITIVE DISPLACEMENT  
 DETECTION  
 AUTHOR: GODDENHENRICH T (Reprint); LEMKE H;  
 HARTMANN U; HEIDEN C  
 CORPORATE SOURCE: KFA JULICH GMBH, INST THIN FILM & ION TECH, POB  
 1913, W-5170 JULICH 1, GERMANY (Reprint)  
 COUNTRY OF AUTHOR: GERMANY  
 SOURCE: JOURNAL OF VACUUM SCIENCE & TECHNOLOGY A-VACUUM  
 SURFACES AND FILMS, (1990) Vol. 8, No. 1, pp.  
 383-387.  
 DOCUMENT TYPE: Article; Journal  
 FILE SEGMENT: PHYS; ENGI  
 LANGUAGE: ENGLISH  
 REFERENCE COUNT: 14  
 CATEGORY: PHYSICS, APPLIED  
 RESEARCH FRONT: 90-0502 004; SCANNING TUNNELING MICROSCOPY;  
 ANOMALOUS FORCE DEPENDENCE; ATOMIC POSITIONS

REFERENCE(S):

| Referenced Author<br>(RAU) | Year<br>(RPY) | VOL<br>(RVL) | PG<br>(RPG) | Referenced Work<br>(RWK) |
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| ANDERS M                   |               |              |             | IN PRESS J MICROSC       |
| BINNIG G                   | 1986          | 56           | 930         | PHYS REV LETT            |
| GODDENHENRICH T            | 1988          | 152          | 527         | J MICROSC-OXFORD         |
| GRUTTER P                  | 1988          | 6            | 279         | J VAC SCI TECHNOL A      |
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L3 ANSWER 1 OF 5 SCISEARCH COPYRIGHT 1998 ISI (R)  
 ACCESSION NUMBER: 91:130391 SCISEARCH  
 THE GENUINE ARTICLE: EZ923  
 TITLE: A NEW FORCE SENSOR INCORPORATING FORCE-FEEDBACK  
 CONTROL FOR INTERFACIAL FORCE MICROSCOPY  
 AUTHOR: JOYCE S A (Reprint); HOUSTON J E  
 CORPORATE SOURCE: SANDIA NATL LABS, ALBUQUERQUE, NM, 87185 (Reprint)  
 COUNTRY OF AUTHOR: USA  
 SOURCE: REVIEW OF SCIENTIFIC INSTRUMENTS, (1991)  
 Vol. 62, No. 3, pp. 710-715.  
 DOCUMENT TYPE: Article; Journal  
 FILE SEGMENT: PHYS; ENGI  
 LANGUAGE: ENGLISH  
 REFERENCE COUNT: 26  
 ABSTRACT:

A new interfacial-force microscope capable of measuring the forces between two surfaces over the entire range of surface separations, up to contact, is described. The design is centered around a differential-capacitance displacement sensor where the common capacitor plate is supported by torsion bars. A force-feedback control system is incorporated which balances the interfacial forces at the sensor, maintaining the common capacitor plate at its rest position. This control therefore eliminates the instability or "jumping" which occurs with conventional cantilever-based force sensors when the attractive force gradient between the fixed sample and sensor exceeds the mechanical stiffness of the cantilever. The operating characteristics of the sensor and its ability to measure interfacial forces using the feedback control at surface separations smaller than this instability point are demonstrated.

CATEGORY: PHYSICS, APPLIED; INSTRUMENTS & INSTRUMENTATION  
 SUPPL. TERM PLUS: ATOMIC-SCALE FRICTION; TUNGSTEN TIP; SURFACE  
 RESEARCH FRONT: 91-0497 003; ATOMIC FORCE MICROSCOPY; ELASTIC TIP  
 SURFACE INTERACTIONS; IMAGING NANOMETER SCALE  
 DEFECTS IN LANGMUIR-BLODGETT-FILMS  
 91-4102 001; SURFACE FORCES; ADSORBED LAYERS;  
 ELECTROSTATIC INTERACTION; AQUEOUS  
 ETHYL(HYDROXYETHYL)CELLULOSE SOLUTIONS

REFERENCE(S):

| Referenced Author<br>(RAU) | Year<br>(RPY) | VOL<br>(RVL) | PG<br>(RPG) | Referenced Work<br>(RWK) |
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